

## **Chapter 5**

# **Tactical Employment of Field Artillery Target Acquisition Systems**

This chapter discusses concepts and procedures pertinent to the tactical employment of the field artillery target acquisition systems. The tactics, techniques and procedures (TTP) contained in this chapter are applicable to the traditional roles of target acquisition. TTP for stability operations and support operations are discussed in Chapter 6.

### **SECTION I – RADAR EMPLOYMENT**

Sound tactical planning is required to effectively cover the division zone of responsibility with TA assets. TA planning is conducted at all tactical levels as an integral part of the MDMP process. This ensures TA assets are fully integrated into combined arms operations. The controlling FA headquarters is responsible for employing TA assets in accordance with the operational plan. This section discusses the tactical considerations for employing radars.

### **COMMAND AND CONTROL**

Command and control are often confused with command and support relationships. Command and control is the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission.

Command is the authoritative act of making decisions and ordering action; control is the act of monitoring and influencing this action. While command and control may be discussed separately for understanding, in practice, command and control is a unified entity. The commander cannot command effectively without control and cannot exercise control without command. The commander uses command and control, which includes the staff, to make effective decisions, to manage the uncertainty of combat, to employ military forces efficiently, and to direct the successful execution of military operations. In short, the goal of command and control is mission accomplishment.

Control is the dissemination of the commander's decisions, guidance, and intent with subsequent supervision and adjustment of subordinate forces' execution to ensure compliance with the commander's intent. Control may take place before, during, and after operations. Control may be exercised

directly or indirectly by directive, plan, or procedure. Information and time are critical to control. The commander, with the help of his staff, uses control to regulate forces and functions of subordinate and supporting units in military operations to ensure mission accomplishment. Control is based on situational information, such as mission, enemy, terrain, troops, time available, and civil considerations (METT-TC), from all sources. The commander uses this information to adjust the resources, concept, or objective of the plan or to exploit success in operations. Staffs help commanders exercise control by:

- Acquiring and applying means to accomplish the commander's intent.
- Defining limits.
- Determining requirements.
- Allocating means.
- Monitoring status and performance and reporting significant changes to the commander.
- Developing specific guidance from general guidance.
- Forecasting change.

Command and control is facilitated by establishing an organization for combat that ultimately assigns a command relationship to every TA asset. There are three command and control methodologies for employing TA radars. They are:

- Centralized control at the DIVARTY or FA brigade.
- Decentralized control by attaching radars to a subordinate FA unit.
- Combination of centralized and decentralized control.

The command and control methodology used is based solely on mission requirements.

## **CENTRALIZED CONTROL**

TA assets may be held under the centralized control of the division artillery or its reinforcing FA brigade. Centralized control optimizes coverage to support the commander's intent. Under centralized control, the S2 in concert with the counterfire officer/targeting officer will:

- Designate a general position area, sector of search, and zones for each radar.
- Establish cueing guidance.
- Designate cueing agents.
- Control radar movement.
- Designates who receives radar targets.

When the FA brigade has control of TA assets, the division artillery should provide the target processing element from the TAB with its associated equipment to the FA brigade. Like the division artillery, the FA brigade headquarters does not have an organic target processing element and thus does not have target processing capability without augmentation. Regardless of which headquarters exercises control, subordinate battalions may be

tasked to provide logistical, survey, and security support because of the dispersal of radars across the division.

## **DECENTRALIZED CONTROL**

Under decentralized control, TA assets are provided to subordinate units for their direct control and employment. Q-36 radar sections are normally attached to DS or reinforcing (R) FA battalions. When attached, the radar is considered an integral part of the DS Battalion support package to the brigade combat team (BCT). The FA battalion S2, in conjunction with the targeting officer, controls the radar, executing the same responsibilities as the division artillery S2 and counterfire officer. Q-36 sections are responsible for covering the supported BCT zone of responsibility. The BCT FSO and targeting officer coordinate mission requirements and priorities with the S2 based on the BCT commander's guidance and intent. Normally division artillery retains centralized control of Q37 radars. However, Q-37 radars may be placed under the control of a multiple launch rocket system (MLRS) battalion or other fire unit based on mission requirements and the tactical situation.

## **COMBINATION CONTROL**

Any combination of centralized and decentralized operational control of radars may be used according to the situation. For example, two Q-36 radars may be assigned to the DS battalions supporting the two committed BCTs while the remaining Q-36 and two Q-37s are kept under division artillery control.

Regardless of the radar control option used, logistical support is a key factor in tactical employment. Normally, TA radar sections are attached to another FA unit for administrative and logistical support. For a discussion of the logistical support entailed by such attachment, see Appendix H.

## **COMMAND RELATIONSHIPS**

TA assets are organized for combat to best meet the commander's intent and accomplish the assigned mission. This is done by establishing command relationships. The commander establishes command relationships for TA assets in accordance with army doctrine. An important consideration when selecting the command relationship is the desired method of control. Radars may remain under the centralized control of the controlling headquarters or decentralized control may be established. Any combination of centralized or decentralized control may be used based on the tactical situation.

Placing a TA element under another unit using one of the following methods forms a command relationship: attachment, operational control (OPCON), or tactical control (TACON). Command responsibilities, responsibilities for service support, and authority to organize or reassign component elements of a supporting force remain with the higher headquarters or parent unit unless the authorizing commander specifies otherwise. The command relationships and inherent responsibilities are depicted in Table 5-1.

**Table 5-1. Command Relationships**

|                                                                             | <b>Inherent Responsibilities</b> |                         |                         |                   |                              |                            |                                         |
|-----------------------------------------------------------------------------|----------------------------------|-------------------------|-------------------------|-------------------|------------------------------|----------------------------|-----------------------------------------|
|                                                                             | Relationship with:               | Task organized by:      | Positioned by:          | Provides liaison: | Maintains commo with:        | Priorities established by: | Gaining unit can further impose:        |
| <b>Attached</b>                                                             | Gaining Unit                     | Gaining Unit            | Gaining Unit            | Per Gaining Unit  | Gaining Unit                 | Gaining Unit               | Attached, OPCODE, TACON, GS, GSR, R, DS |
| <b>OPCON</b>                                                                | Gaining Unit                     | Gaining Unit (see note) | Gaining Unit            | Per Gaining Unit  | Parent Unit and Gaining Unit | Gaining Unit               | OPCON, TACON, GS, GSR, R, DS            |
| <b>TACON</b>                                                                | Gaining Unit                     | Parent Unit             | Gaining Unit (maneuver) | Per Gaining Unit  | Parent Unit and Gaining Unit | Gaining Unit               | GS, GSR, R, DS                          |
| NOTE: Except when involving Multinational forces in NATO, then Parent Unit. |                                  |                         |                         |                   |                              |                            |                                         |

## ATTACHMENT

Attachment is the placement of units or personnel in an organization where such placement is relatively temporary. Subject to the limitations imposed by the attachment order, the commander of the formation, unit, or organization receiving the attachment has the responsibility to provide the attached units with sustainment support above its organic capability. However, the parent formation, unit, or organization normally retains the responsibility for transfer, non-judicial punishment, courts martial and human resources support such as strength accounting, promotions and other essential personnel services.

## OPERATIONAL CONTROL

Command authority that may be exercised by commanders at any echelon at or below the level of combatant command is operational control (OPCON). Operational control is inherent in command authority. Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Operational control provides full authority to organize commands and forces and to employ those forces, as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training.

## **TACTICAL CONTROL**

Tactical control (TACON) is the command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed and, usually, local direction and control of movements or maneuvers necessary to accomplish missions or tasks assigned. Tactical control is inherent in operational control. Tactical control may be delegated to, and exercised at any level at or below the level of combatant command. Tactical control allows commanders to apply force and direct the tactical use of logistics assets but does not provide authority to change organizational structure or direct administrative and logistical support.

## **SECTORS OF SEARCH**

Sectors of search are areas on the battlefield where radars focus their capabilities. Sectors of search are determined during the IPB process and refined in the decide function of the D3A cycle. During the decide function, decisions are made concerning what targets should be acquired and attacked, where and when targets are likely to be found, and who can locate them. Doctrinal employment considerations, in conjunction with templates and intelligence produced during the IPB process, dictate the areas in which the radar search should be focused. The location of friendly boundaries, fire support coordinating measures, and the common sensor boundary (CSB) may also affect the assignment of search sectors.

## **ZONES**

Zones are a means of prioritizing radar sectors of search into areas of greater or lesser importance. Zones focus radar coverage on the combined arms commander's battlefield priorities. A zone is a geometric figure placed around an area that designates the area as more, or less, important. Four types of zones can be entered into a Firefinder radar:

- Critical friendly zones (CFZ).
- Call-for-fire zones (CFFZ).
- Artillery target intelligence zones (ATIZ).
- Censor zones (CZ).

Targets developed by the radar are displayed for transmission in order of priority based on the zone from which they were developed. There are two categories of zones, priority and censor. The Q-36 and Q-37 can store a total of nine zones.

## **PRIORITY ZONES**

Priority zones are prioritized areas for locating hostile weapon systems. There are three types of priority zones in order of precedence:

- Critical friendly zone (CFZ).
- Call for fire zone (CFFZ).
- Artillery target intelligence zone (ATIZ).

All other weapon firing locations identified by the radar are displayed after locations identified within priority zones. Firing locations identified within a CFZ or CFFZ generate a FM;CFF message. All other acquisitions generate an ATI;CDR message.

### **CFZ**

A CFZ is an area established around a friendly unit or location that is critical to the success of the combined arms commander's plan. When the computer predicts an enemy round will impact in a CFZ, the radar generates a call for fire on the location from which the round was fired. This happens automatically unless overridden by the radar operator. A FM;CFF message is sent to controlling FA headquarters as a priority 1 message. The CFZ provides the most responsive submission of targets to the fire support system. The CFZ does not have to be within the radars search zone.

### **CFFZ**

A CFFZ designates a search area from which the commander wants to attack hostile firing systems. A CFFZ would be placed around an enemy fire support position identified by IPB as a HPT. A CFFZ generates the second highest priority fire request. A target identified in a CFFZ generates a FM;CFF priority 2 message. The commander may upgrade the priority, to priority 1, for certain CFFZ. A CFFZ must be in the radar's sector of search.

### **ATIZ**

An ATIZ is an area in enemy territory that the commander wishes to monitor closely. Any weapon detected in an ATIZ will be reported ahead of all acquisitions other than those from CFZs or CFFZs. Detections from an ATIZ generate an ATI;CDR.

### **CENSOR ZONES**

Censor zones (CZ) are areas from which the radar is prohibited from reporting acquisitions. A CZ is normally placed around friendly weapon systems to prevent them from being acquired by other friendly radars. The CZ is most often used in non-linear situations or during cross FLOT raids or infiltration. Care must be used when employing a CZ since the radar ignores all acquisitions coming from the CZ. This remains true even if the hostile weapon is firing at a unit inside a CFZ. Figure 5-1 depicts the use of a CZ.

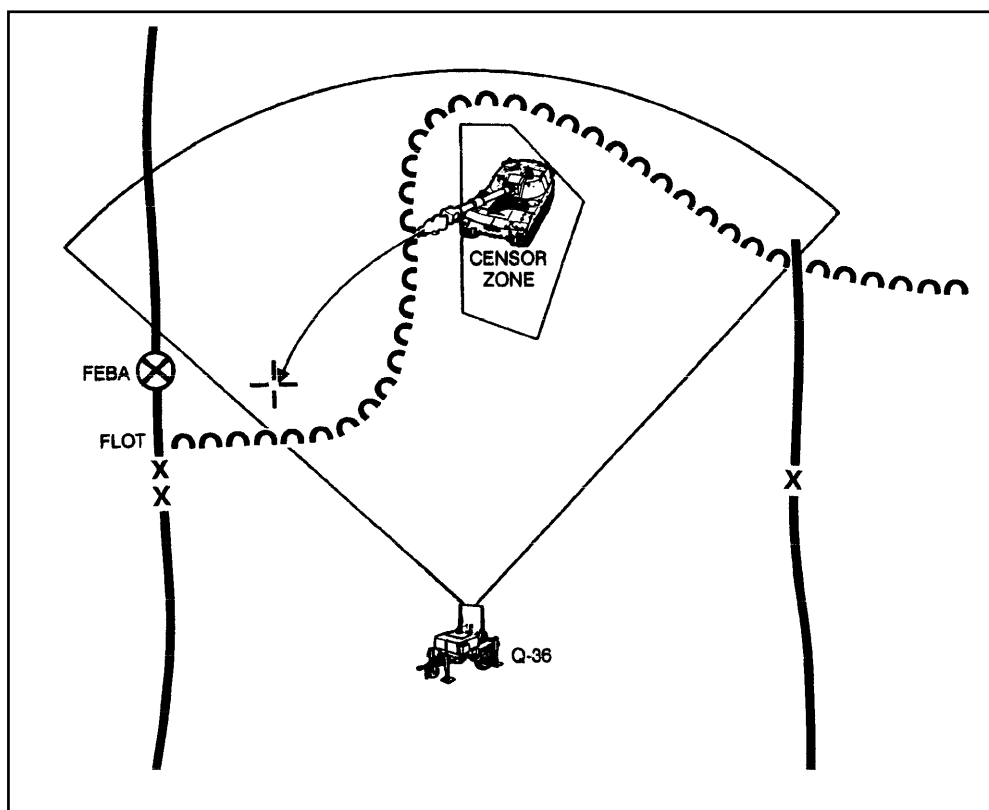


Figure 5-1. Censor Zone

## DEVELOPING ZONE DATA

Zone data must support the tactical plan and satisfy the radars requirements for data input. The DS battalion S2 and the targeting officer develop zone data for the Q-36 and the counterfire officer develops zone data for Q-37's. The data is entered and transmitted from the TOC to the radar using the automated RDO (see Appendix G). The following considerations apply when developing zone data:

- Up to nine zones can be entered in the radar. All zones may be of one type or any combination of types.
- A zone must be defined by a minimum of three and a maximum of six coordinates.
- An azimuth should not intersect the boundary of a zone more than two times as shown in Figure 5-2.
- A radar zone cannot intersect or touch another zone.
- No more than two zones can be along the same search azimuth for radars using the S-250 shelter. (See Figure 5-3).
- Grid coordinates must be listed and entered sequentially.
- Zone coordinates cannot fall outside the sector of search (except for CFZ).

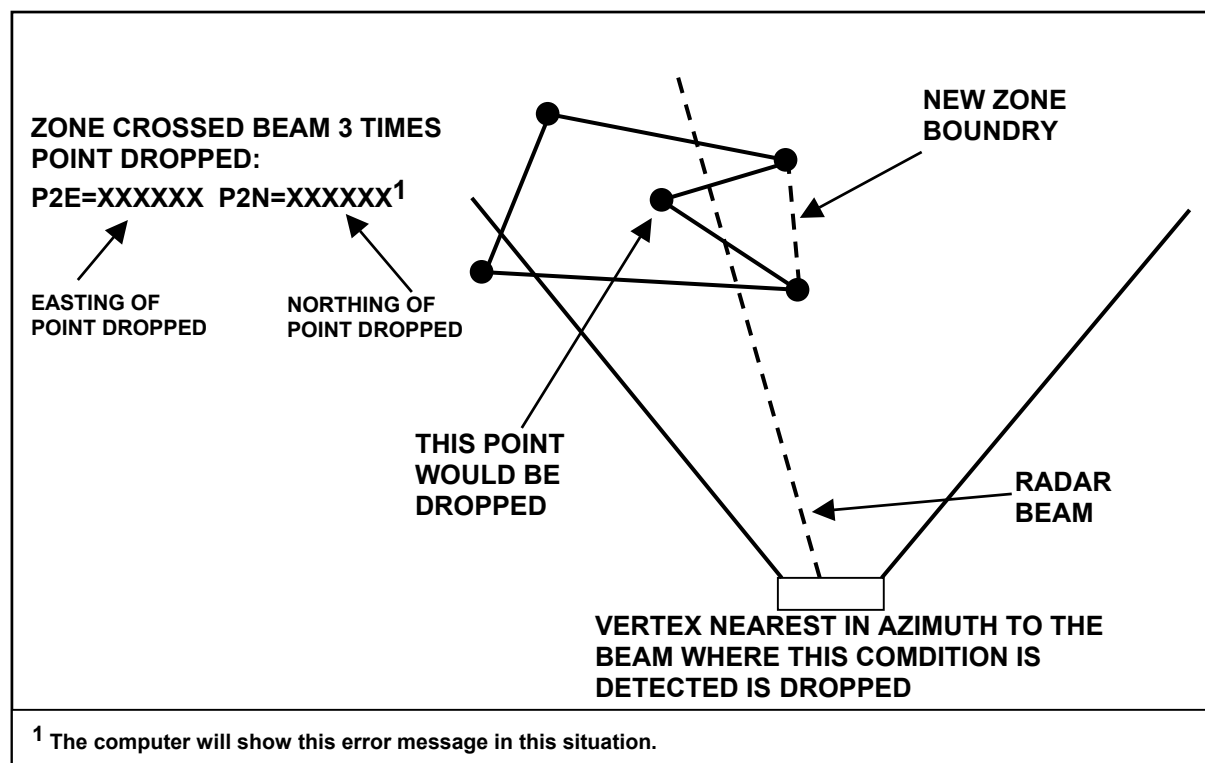
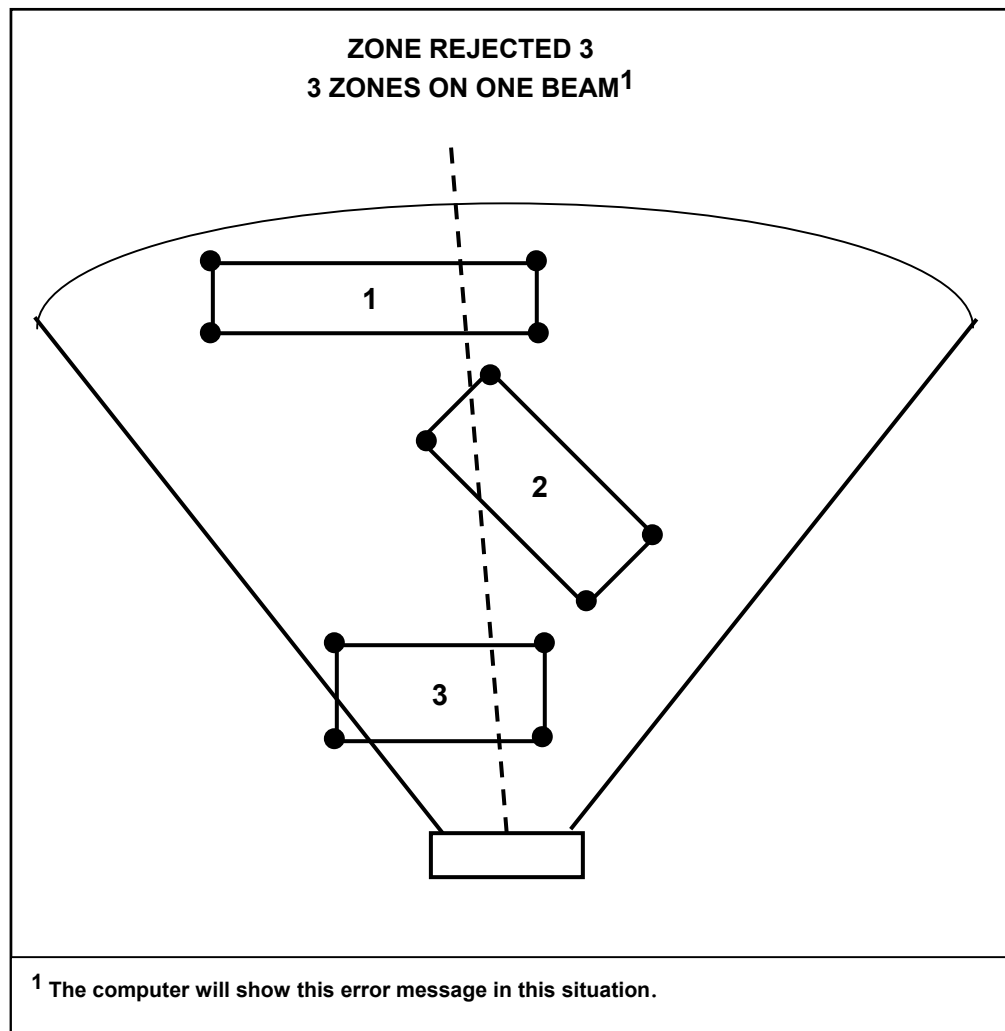


Figure 5-2. Zone Rejected Zone Crossed Beam 3 Times





**Figure 5-3. Zone Rejected 3 Zones On One Beam**

## **ZONE MANAGEMENT**

TA assets are employed to support counterfire operations. Counterfire is part of the combined arms commander's overall battle plan and not a separate operation. Radar zones are managed to comply with the commander's guidance and intent and are an important part of force protection and the prioritization of fire support efforts. Understanding the maneuver commander's plan, and integrating fire support officers into the development, refinement and triggering of planned zones is key to successful radar zone management. Planning guidance may be found in a number of different documents. These locations include the fires paragraph, tasks to subordinate units and coordinating instructions of the operations plan or order, and the fire support annex. Information from these sources provides the necessary guidance and information to initiate zone planning.

There is a distinct difference between zone management in the brigade sector, and zone management in the division sector. At the brigade combat team (BCT), BCT and task force FSOs are directly involved in the planning, refinement and triggering of the zones. Accordingly, the BCT FSE prioritizes BCT requirements and allocates radar zones to support the scheme of maneuver. The planning for and availability of redundant radar coverage by DIVARTY Q-37s is critical to the BCT's success. This coverage must be included in planning guidance and coordinated as early as possible.

The DIVARTY counterfire officer (CFO) is responsible for employing division TA assets. Accordingly, he must be involved in the planning of the BCT's counterfire operations and fully understand their TA support requirements. The BCT FSE, targeting officer, and the DS FA battalion S2 must coordinate their requirements for available GS fires and additional radar coverage with the DIVARTY CFO. Coordination between the DIVARTY CFO and BCT targeting team members is crucial to the success of the counterfire battle.

Basic guidelines for zone planning include:

- Use top down planning and bottom up refinement.
- Include the top down radar zone plan in the maneuver order.
- FSOs, S2s, and targeting officers conduct bottom up refinement that reflects the developed situation template, force protection priorities, and scheme of maneuver.
- The brigade targeting officer or division counterfire officer manages zones by resolving duplication, time phasing zones by priority, including zones on the FS execution/synchronization matrices, and providing zones to radar sections via the radar deployment order (RDO) or radar execution matrix.
- The radar section leader performs technical zone management at the radar.
- Refine and update zones as the operation progresses.

## ZONE MANAGEMENT PLANNING SEQUENCE

The following procedure provides a list of activities essential for successful zone planning.

- Prioritize operational sector and scheme of maneuver events for zone planning based on the commanders intent/guidance (commander, FSCoord, FSO, targeting officer and CFO).
- Develop zones during the course of action (COA) development and the wargaming process (S2/G2, FSOs, targeting officers and CFO).
- Approve and allocate zones to subordinate FSEs that support the scheme of maneuver, meet the commander's priorities for force protection and facilitate the engagement of high payoff targets (commander, targeting team, FSE and CFO).
- Develop and assign decision points as triggers for the execution of planned zones (S2, FSE, targeting officer).
- Incorporate decision points (triggers) for planned zones and radar movement into the appropriate decision support template (DST),

synchronization/execution matrices and intelligence collection plan (ICP) (S2/G2, FSO, FAIO, targeting officer and CFO).

- Refine to ensure nominated zones facilitate the scheme of maneuver and the commander's intent for force protection (commander, targeting team and CFO).
- Rehearse planned zones (radar movement, zone activation and Counterfire Battle drill) during combined arms, FA technical and fire support rehearsals (commander, FSCoord, FSO, targeting officer, G2/S2, radar and CFO).
- Refine zones during execution as the IPB improves or the scheme of maneuver changes (FSOs, targeting officers, G2/S2 and CFO).
- Develop positioning guidance for the radar that optimizes the probability of acquisition and supports the coverage of planned zones (S2, S3, radar and CFO).

## ZONE MANAGEMENT RESPONSIBILITIES

Responsibilities for radar employment and zone management must be fixed to focus the planning process and execution. The combined arms commander is ultimately responsible for counterfire and his staff's fixed responsibilities must include:

- FSCoord:
  - Translates the commander's intent for force protection and engagement of enemy indirect fire weapons.
  - Ensures force protection and counterfire priorities are articulated in the commander's fires paragraph to the OPORD.
  - Recommends zones to the commander during the planning process.
- Targeting team:
  - Synchronizes all target acquisition assets and zone development to facilitate the D3A process.
  - Ensures planned zones are synchronized with the applicable elements of the High Payoff Target List, (HPTL).
  - Allocates, verifies, and updates zones to ensure the commander's intent for force protection and engagement is met.
  - Assigns cueing agents corresponding to NAIs, TAIs, PIRs and IRs associated with planned zones. The designated cueing agents should be included in the RS&S plan and be in position to trigger activation of the zone.
- FSO/targeting officer:
  - Provides guidance to lower echelon FSOs/targeting officers and solicits force protection measures - CFZs.
  - Ensures priorities and triggers are developed for the activation and inactivation of zones.
  - Integrates planned triggers into the appropriate DST/synchronization matrixes.

- Incorporates planned zones into the combined arms and fire support rehearsals.
  - Ensures zones are sent to S2s/CFOs for inclusion in the radar deployment order (RDO).
- Operations officers (G3/S3):
  - Incorporates decision points, planned zones, and radar movement into the DST and synchronization matrix.
  - Ensures the TA TAB to the Field Artillery Support Plan includes coordination measures for zone development and radar positioning.
  - Ensures land management for the radars is coordinated with maneuver elements.
  - Determines attack guidance and firing unit assignment to support the responsive engagement of counterfire acquisitions.
  - Monitors range capabilities of both the acquisition agent (radar) and engagement systems to ensure positioning and movement supports the counterfire plan (zones/force protection priorities).
- Task force FSOs:
  - Develops priority zones to support the task force plan - CFZs/CZs.
  - Nominates zones to the brigade commander (FSO/targeting officer) for approval and priority.
  - Develops precise triggers along with identifying and assigning cueing agents for priority zones.
  - Ensures the developed triggers are incorporated into the supported units DST/synchronization matrix.
  - Establishes ownership and responsibility for the zones.
  - Ensures any changes to the scheme of maneuver are compared against the planned zones.
  - Ensures refinement is completed and sent to the DS FA battalion S2 for transmission to the radar.
  - Activates and refines zones during execution.
- DS battalion S2:
  - Develops CFFZs based on the templated enemy artillery positions and known intelligence data.
  - Nominates zones to the targeting team for approval and inclusion into the ICP.
  - Receives approved zones from the BDE FSO/targeting officer for inclusion into the RDO.
  - Constructs radar employment plan and RDO in conjunction with the radar section leader.
  - Refines zones as IPB improves or the scheme of maneuver changes (updates RDO).
- Radar section leader:
  - Ensures the capabilities/limitations of the radar system are considered during the planning process.

- Selects radar positions that support the coverage of the planned zones and facilitates movement to support the scheme of maneuver.
- Identifies zone restrictions violated during the planning process.
- Performs technical zone management of the radar employment plan.

## COMMON SENSOR BOUNDARY

Target duplication between Firefinder radars is likely during combat operations. In addition, the sheer volume of targets passed from the radars may overwhelm the targeting element, especially if the radars are under centralized control. An effective method of reducing or eliminating target duplication is to establish a common sensor boundary (CSB). The CSB is established by the counterfire headquarters and divides TA search areas into acquisition management areas for Q-36 and Q-37 systems. The CSB is generally depicted by using: a grid line, phase line, or major terrain feature. Q-36 radars should not limit their maximum range to the CSB or establish CFFZs beyond it. Likewise, Q-37 radars should not limit their minimum range to the CSB or establish CFFZ short of it. When possible, the CSB should be positioned in conjunction with the coordinated fire line (CFL). This eliminates the requirement to clear Q-37 generated fire missions. The CSB is not a fire support coordinating measure. It is a zone management tool used by the counterfire headquarters to enhance the effectiveness of radar coverage.

The following factors influence the placement of the CSB:

- Availability of attack systems.
- Range of attack systems.
- Range and operational mode of TA radars.
- Known and suspected locations of enemy indirect fire systems.
- Type and availability of munitions.

The location of the CSB is adjusted based on the tactical situation. Repositioning of radars, changing enemy situations, and the establishment or deletion of fire support coordinating measures (FSCM) may dictate adjustment or deletion of the CSB. Figure 5-4 shows the use of the CSB.

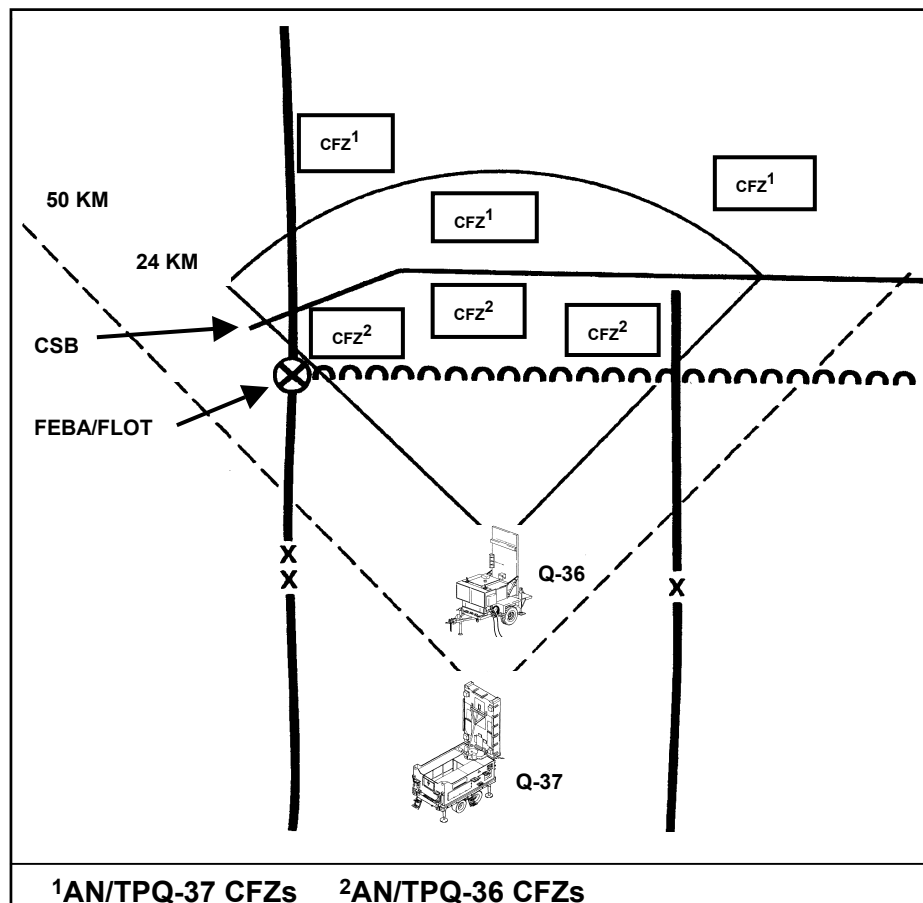


Figure 5-4. Common Sensor Boundary

## CUEING

Cueing is the process designed to prompt or notify the radar to begin radiating to acquire hostile fire. Determining when and how to best cue the radar is one of the most difficult planning decisions. There are as many different methods to cue a radar as there are situations when it should be cued. Targeting technicians, S2/G2s and FSOs must establish cueing guidance based on the maneuver commanders guidance. Both authority to cue and priority for cueing requirements must be clearly understood. Planned random schedules based solely on hours of the day are not recommended and are usually ineffective. Unnecessary cueing subjects the radars to enemy direction finding. Therefore, cueing should be event driven to provide maximum support during critical phases of the battle.

The cueing of radars may be centralized or decentralized. Centralized cueing routes all cueing requests through the radar controlling headquarters. Centralized cueing may be less responsive based on the level of activity on communications nets and the number of nets the request to cue must go through. During decentralized cueing, the controlling FA headquarters establishes cueing guidance, to include authorized agents, communication

links, and conditions under which the radar may be cued. At maneuver battalion or task force (TF) level, the radar cueing instructions are given in the radar deployment order. At maneuver brigade and above, where a written operation plan (OPLAN) or operation order (OPORD) is used, the cueing guidance should be in the TA tab to the FA support plan. When cueing agents other than FA assets are designated, cueing guidance should be given in the basic order as coordinating instructions or tasks to subordinate units.

The critical factor when planning radar cueing is responsiveness. Cueing should allow the radar to locate enemy positions during initial volleys of fire, preferably the first rounds. There are two techniques for cueing; situational (pro-active), and demand (reactive). Situational and demand cueing may be used separately or in combination.

### **SITUATIONAL CUEING**

Situational cueing is the preferred technique for cueing radars and is the most responsive. This method ties cueing to events and/or triggers that are determined during the IPB and planning process. For example, during offensive operations an event or trigger may be a breaching or air-assault operation. In a defensive operation, cueing may be tied to suspected enemy phases of fire depicted on the decision support template. Situational cueing focuses the radar on the commander's intent and what is critical.

### **DEMAND CUEING**

Demand cueing is the activation of a radar once the enemy is known to have begun firing. For demand cueing to be effective, cueing agents must be designated and a responsive communication system between the agents and radar established. Specific cueing guidance must also be established to fully exploit the radars capabilities and minimize or eliminate unnecessary radiation. The situation will dictate who best can cue the radar and the specific conditions under which it should be cued. Possible cueing agents may include:

- Combat observation/lasing teams or strikers.
- Forward observers (FOs); (FISTS).
- Observers in OH-58D helicopters.
- Rear area CPs.
- Brigade or division-level EW systems.
- Scouts.
- G2/S2s.
- FSOs.
- CFOs/targeting officers.

Cueing must be based on real-time information so that the radar has a high probability of tracking projectiles when it is turned on. Consider the situation where a task force FSO is designated as a cueing agent (refer to Figure 5-5). The following events occur:

- 1 – The task force assembly area receives hostile artillery fires.

- 2 – The task force FSO immediately cues the radar.
- 3 – The radar responds and locates the hostile artillery firing on the task force.
- 4 – The radar transmits a call for fire to the DS FA battalion.
- 5 – The battalion FDC executes the attack in accordance with the established attack guidance.

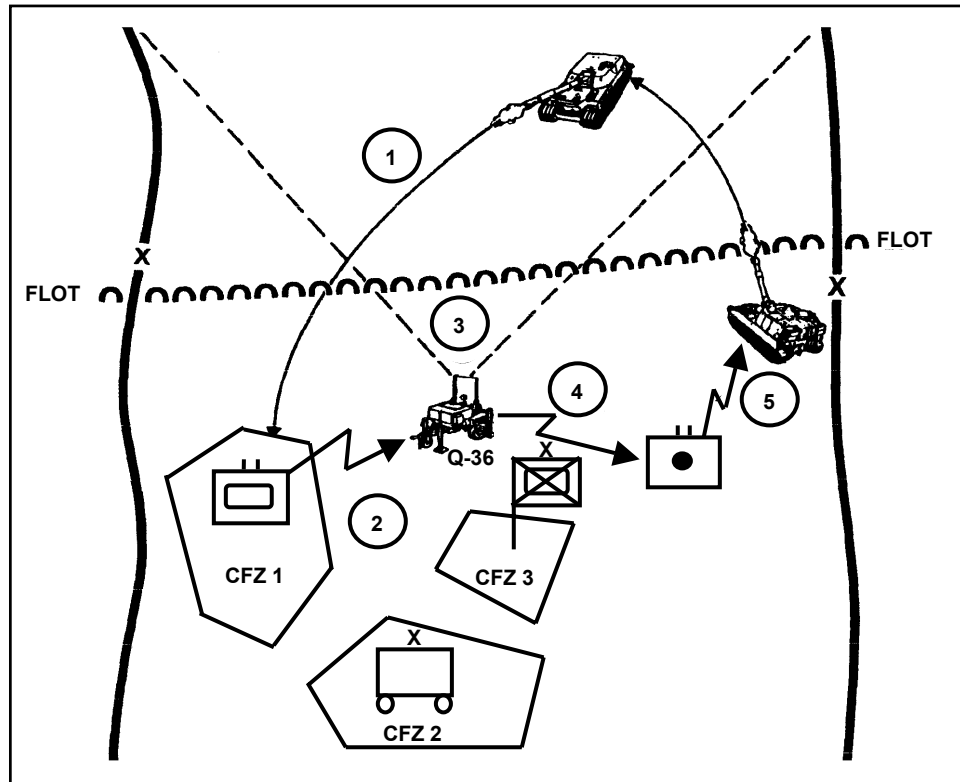


Figure 5-5. Demand Cueing

## TARGET ACQUISITION RADAR ROLE DURING OFFENSIVE OPERATIONS

The primary role of TA radars in the offense is to locate enemy targets for attack by friendly fire support systems. During offensive operations, particular attention must be given to planning TA operations to facilitate future operations. TA planners must ensure a smooth transition from one phase to the next by providing continuous radar coverage across the zone of operations. Requirements for radar positioning and movement are identified during the MDMP and tied to specific events. This allows continuous coverage by facilitating mutually supporting coverage between radars. The FSCoord monitors this process closely to ensure that the use of terrain, movements and radar zones are properly coordinated.

The first consideration for radar zones in the offense is CFFZs. Establishing CFFZs facilitates immediate counterfire to suppress enemy artillery that



may disrupt the scheme of maneuver. CFZs may be planned through the zone of operation or along the axis of advance and activated when entered by friendly forces. This is particularly important in areas where friendly forces are most vulnerable, for example, at river crossings, breach sites or open areas.

Control of radars will generally be more decentralized to facilitate command, control, movement, and cueing. The controlling FA headquarters will designate cueing agents that can cue radars by calling them directly. This is necessary to streamline the TA and counterfire effort when committed maneuver forces may be particularly vulnerable to enemy indirect fire.

## **TARGET ACQUISITION RADAR ROLE DURING DEFENSIVE OPERATIONS**

The primary role of TA radars in the defense is to provide target intelligence and information to allow friendly forces to take force protection measures and enable counterfire mission processing. TA planners must also consider transitions to offensive operations such as counterattacks. Positioning, task organization, and on-order missions should facilitate transitions.

The first consideration is the use of the radar's zone capabilities to provide coverage for critical units or installations using CFZs. The combined arms commander should indicate the assets that are deemed essential to ensure mission accomplishment. If the commander does not identify these assets, the FSO or targeting officer must query the commander for the necessary guidance. Once the guidance is obtained, the information is passed to the controlling FA headquarters for implementation.

The second consideration for the use of zones is areas in which to use CFFZs. On the basis of IPB and other target indicators, CFFZs are used to monitor suspect areas from which enemy artillery fires may jeopardize the mission. This facilitates the use of counterfire to suppress, neutralize or destroy those targets.

ATIZ may be established in areas where we are not sure about enemy artillery and need to develop the situation. They can also be used in areas of suspect enemy artillery that the commander wishes to monitor closely but are out of friendly artillery range. Finally, a CZ might be used around friendly artillery or mortar positions when their location would expose them to detection by friendly Firefinder radars.

## **RADAR TASKING PROCEDURES**

There are several methods for specifying coverage for radar sections. They include the radar deployment order (RDO), the radar execution matrix, and the AFATDS RDO format. All three methods provide the required information for conducting radar operations. However, the primary method for orienting radars is digitally using the AFATDS RDO. IFSAS equipped units may routinely use the radar execution matrix or the traditional RDO. However, IFSAS equipped units can use the SPRT;FILTER and SPRT;SEARCH formats to orient the radar. Detailed procedures for using these methods of orienting radars is included in Appendix G.

## **SECTION II – COUNTERFIRE OPERATIONS**

Counterfire gains freedom of action for all friendly maneuver forces. It can be accomplished by the fire support system using both lethal and nonlethal means. Counterfire is not a separate battle. It is inseparably tied to close and deep operations and is part of the overall combined arms fight to achieve fire superiority. While a fine line may exist between counterfire and attack at depth, once an indirect fire target is capable of affecting the close fight, its attack is considered counterfire. Intelligence assets must be prioritized to accurately locate targets. Attack assets (such as artillery, mortars, close air support, attack helicopters, naval gunfire and EW assets) must be brought to bear on the enemy total fire support system. Counterfire is the combined arms commander's responsibility. The FSCoord is his primary advisor and executor. Field artillery target acquisition exists to support the combined arms commander's scheme of maneuver during the offense and provide radar coverage for his most vulnerable assets during the defense. Effective use of target acquisition enhances observation of critical terrain; for example, avenues of approach, potential assembly areas, and possible enemy reconnaissance routes. Combined arms commanders must emphasize that all combat information must be reported through fire support as well as operational channels. The commander ensures proper positioning of TA assets for optimal probability of detection and maximum effectiveness of counterfire.

### **CORPS**

The corps' counterfire role is focused on deep, proactive, counterfire. In most situations, the division orchestrates and executes counterfire in support of corps close operations. The corps resources divisions to conduct close counterfire operations. This allows an orderly and calculated division of labor. Just as the division separates and deconflicts the radar coverage and counterfire efforts of the division and maneuver brigades, so must the corps deconflict the efforts of the corps and division. The corps normally accomplishes this through the use of division forward boundaries, phase lines, or simply by deconflicting specific target sets. The corps normally assumes responsibility for locating and attacking army artillery groups (AAG) and army groups of rocket artillery (AGRA) while divisions locate and attack division artillery groups (DAG), although this is not always the case.

Corps has a myriad of assets to conduct counterfire operations to include elements of the corps artillery, corps aviation brigade, Air Force air interdiction and reconnaissance sorties, Army reconnaissance and attack helicopters, and EW. The corps facilitates the division counterfire fight by allocating resources. These resources often include FA brigades, CAS, attack helicopters, EW, and intelligence support. In the case of light divisions, the corps provides divisions with a CTAD to provide Q-37 support. CTADs are allocated based on the number of assigned light divisions. There aren't any CTADs or TABs allocated to the corps for direct corps use. In some situations, and after careful consideration, corps commanders may temporarily draw on divisional FA assets to support corps counterfire operations. However,

diversion of limited divisional acquisition, processing, and attack assets entails the risk of their destruction and non-availability to support division operations during critical phases. Equally important is the timing of their return to divisional control, particularly in the heat of battle. The return must be carefully planned and coordinated.

Corps artillery contributions to the overall counterfire effort include the responsibility to:

- Implement the organization for combat of corps artillery counterfire assets by retaining FA assets at corps level or allocating them to subordinate divisions in accordance with missions and guidance issued by the corps HQ.
- Supervise preparations and execution of counterfire responsibilities by subordinate corps elements within counterfire sectors of responsibility established concurrently with the designation of maneuver boundaries and AOs for subordinate divisions. This includes targets within a division's or adjacent unit's AO, if requests for such support have been submitted and approved by corps. Within capability, corps may also respond to requests for additional fires from adjacent units.
- Detect multiple rocket launcher battalions, helicopter forward operating bases, and other counterfire targets with organic FA assets, reinforced by collectors from the corps' military intelligence brigade, long-range reconnaissance units, and special operations forces (SOF).
- Attack threat fire support systems with MLRS and cannon battalions of corps FA brigades to a range of 30 km (60 km for guided MLRS (GMLRS)). Beyond 60 km, ATACMS, Army aviation, Air Force sorties, and ground maneuver forces may be available for target attack.
- Recommend the acquisition of additional sensor and attack assets from echelons above corps (EAC), the joint task force (JTF) commander, or other services.
- Assess the success of efforts to protect friendly units from threat fire support systems. As needed, recommend modifications to intelligence collection and attack priorities to enhance force protection through a more effective attack of enemy counterfire targets.

By allocating corps assets, issuing attack guidance, and identifying corps HPTs, corps influences how subordinate divisions fight their counterfire battle. They can shape a division's counterfire effort by attacking threat FS systems in depth, providing MLRS and ATACMS fires, and EW support. Within divisional AOs, corps commanders:

- Define areas of counterfire responsibility by establishing boundaries for subordinate units.
- Provide IPB products and critical intelligence information developed at corps or higher and adjacent HQ.
- Attack targets nominated by the divisions or tasked by corps. Corps, after coordination with division FSEs, may attack threat FS targets

within divisional AOs by massing fires to achieve required effects (for example, massing fires to neutralize a reconnaissance strike complex). Also, procedures for attacking threat systems firing across boundaries must be coordinated. However, in all cases the division must orchestrate and give final approval for all corps fire missions within its AO.

- Provide divisions with additional assets for detecting and attacking threat FS systems.

A detailed discussion of corps counterfire operations is contained in FM 3-09.6.

## **DIVISION**

Counterfire responsibilities at the division essentially mirror those at corps. Successful prosecution of the divisional counterfire battle destroys, neutralizes, or suppresses hostile indirect fire systems in both offensive and defensive operations, thereby protecting friendly elements from the effects of enemy artillery fires. This, in turn, provides friendly combined arms forces with the necessary freedom of action and flexibility to prosecute the direct firefight relatively unencumbered by threat artillery fires. This is particularly critical for light units and any mechanized elements conducting dismounted operations, e.g., breach operations.

Since most threat FA systems are located in a division's AO, the preponderance of counterfire takes place within this area. Divisional organic FA counterfire assets are limited to the division multiple launch rocket system (MLRS) battalion in heavy divisions supported by its organic TAB. One of the two FA brigades that will normally augment a DIVARTY in an attached or reinforcing status will normally be designated as the counterfire headquarters and be given the responsibility for planning and executing the division's counterfire battle. However, even in this case, the DIVARTY commander as division FSCoord retains overall responsibility for orchestrating the division's counterfire effort. A detailed discussion of division counterfire operations is contained in FM 3-09.5.

## **ROLE OF FA BRIGADES IN DIVISION COUNTERFIRE OPERATIONS**

Unless specifically task-organized, FA brigades do not possess organic TA capabilities. If divisions assign reinforcing or attached FA brigades the counterfire role, the division must augment the brigade HQ with acquisition and processing assets in the form of Firefinder radars and the TAB/CTAD target processing section. Assignment of the counterfire mission should receive prior corps artillery concurrence to ensure availability of the FA brigade to perform the counterfire role for the duration of the operation.

## **IBCT AUTONOMOUS OPERATIONS**

The Army's transformation to an objective force has created designs for interim BCT (IBCT) and divisions. The interim force designs place the Q-36 and Q-37 in the IBCT adding flexibility and enhanced force capabilities. The IBCT may employ its radars while operating as an autonomous force, early

entry force, or as part of an interim division force. When acting as an early entry force, the IBCT would perform its own counterfire operations in the same manner as a traditional division. The main differences are:

- The IBCT has fewer radars, one Q-36 and one Q-37.
- May or may not have counterfire support from a division.
- Fires and effects coordination cell (FECC) performs functions as the counterfire headquarters.

In the IBCT, the FECC positions and tasks radars based on IPB and the commanders guidance. The Q-36 radar is positioned to acquire mortars and short-range artillery while the Q-37 radar is positioned to acquire longer-range artillery and rockets. Deconfliction of coverage in autonomous operations is simple since the FECC controls both radars. Even so, a CSB might be established to segregate Q-36 and Q-37 coverage areas. If established, the CSB should be placed in conjunction with the IBCT coordinated fire line when possible. This eliminates the need to clear acquisitions before firing. Radar zones are established in the traditional method based on operational needs. In more non-linear situations, call for fire zones (CFFZ) may be pre-cleared to facilitate target attack. A non-linear battlespace may place the radars in a firebase type situation instead of a typical zone of action. The CSB might be a circle surrounding the force with the Q-36 acquiring targets inside the circle and the Q-37 acquiring targets outside the circle. Figure 5-6 depicts this concept.

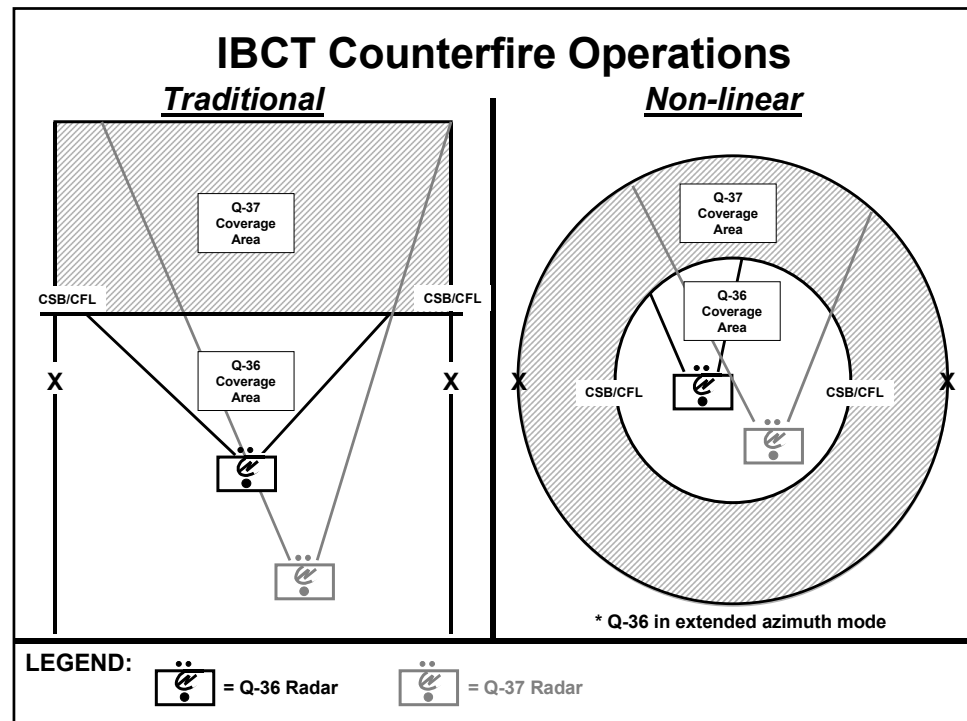


Figure 5-6. IBCT Counterfire Operations

## **IBCT AND DIVISION INTEGRATED OPERATIONS**

There are several options for conducting counterfire operations when the interim division FECC controls counterfire operations. The interim division might conduct traditional counterfire or decentralize its counterfire operations when operating in a non-linear, non-contiguous AO. The interim division may also assume control of all IBCT Q-37s to support division operations. Further, in cases of a non-linear battlespace, the division might task the IBCT with conducting all counterfire operations for the division in a designated area.

Decentralized counterfire operations tasks IBCTs with the mission of acquiring targets and providing TA coverage traditionally performed by the division. This might be done when the division is conducting nonlinear operations or in a linear battle space when the division needs to concentrate on a specific target. For example, an IBCT might be tasked to acquire and attack DAG systems while the division focuses on an AAG or AGRA. Or, the IBCT might be tasked to provide all the radar coverage within its AO. Servicing these targets might remain a division responsibility unless the division allocates additional delivery systems to the IBCT.

## **INTERIM FORCE DECENTRALIZED LINEAR COUNTERFIRE OPERATIONS**

Deconfliction of radar coverage during decentralized operations may be more difficult since the IBCT has its own Q-37s. CSBs are traditionally used to segregate the coverage areas of Q-36 and Q-37 radars. Unless the division is controlling IBCT Q-37s, it must establish graphical control measures to deconflict the coverage of IBCT and division Q-37 radars. Possible control methodologies may include the use of IBCT forward boundaries, phase lines, or designating specific target sets or coverage areas for IBCT Q-37s. Figure 5-7 illustrates a method of deconflicting radar coverage and responsibilities in a linear battlespace.

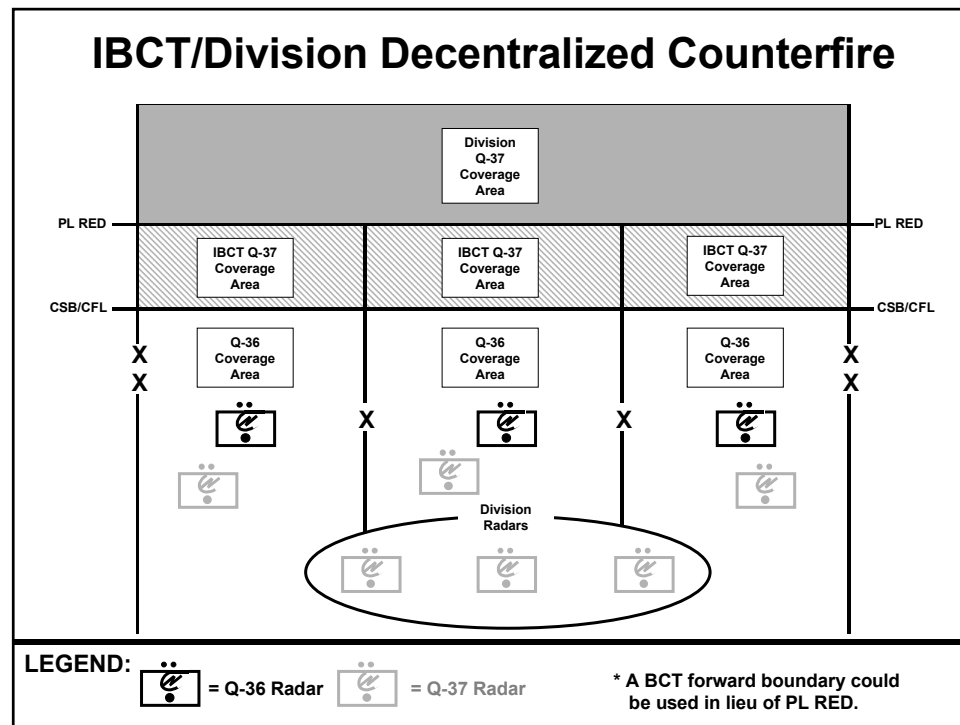


Figure 5-7. Decentralized Counterfire Operations

## INTERIM FORCE DECENTRALIZED NON-LINEAR COUNTERFIRE OPERATIONS

The TA assets of the IBCT and interim division provide the force commander with a greater ability to support counterfire operations in a non-linear environment. The division can assign IBCTs autonomous counterfire responsibilities in their AOs and provide TA and counterfire coverage in the remaining division areas. The division accomplishes this by establishing graphical control measures and zones of responsibility (ZOR) to segregate the division and IBCT counterfire fights. This is very important when IBCTs are attacking along axes and have assailable flanks or when there are large gaps between IBCT AOs. IBCT radars establish their coverage areas to correspond with the IBCT's AFATDS ZOR. Each division controlled Q-37 establishes the specific coverage areas designated by the division FECC. These coverage areas are developed based on IPB and focus only on those areas affecting division operations. This allows the FECC to focus counterfire operations on critical areas and systems and eliminate coverage of areas that pose little threat to the force.

## SECTION III – STRIKER EMPLOYMENT

### MISSION

The mission of the striker platoon is to provide the maneuver brigade commander with high technology observation teams that are dedicated to executing specific fires tasks throughout the depth of the brigade's

battlespace. This mission includes calling for conventional artillery and rocket fires, providing laser designation for smart munitions and, as a secondary mission, providing reconnaissance and surveillance for the brigade. Although originally conceived to designate for Copperhead missions, Strikers can provide final ballistic guidance for any munition requiring reflected laser energy. At present, the team can provide laser designation for smart munitions delivered by Army, Air Force, Marine Corps or Navy aircraft.

## OPERATIONS

The platoon headquarters provides leadership and control of striker platoon operations. Each striker team has the organic communications equipment to operate on two nets during mounted operations. During dismounted operations, they have the ability to operate on only one net at a time. The teams have at least four potential nets on which they may have to operate:

- Brigade digital fire support net.
- Brigade operations and intelligence net.
- Brigade voice fire support net.
- Brigade reconnaissance troop (BRT) internal net.

The primary net should be the brigade digital FS net. If striker teams have good digital communications on that net, they can perform their primary mission and most other agencies can send them digital messages. The brigade SOP or order should specify times or situations when they need to check in on one of the other nets.

The striker platoon supports the targeting process by detecting, tracking, initiating target attack and reporting BDA. During the decide phase of the targeting process, striker teams are assigned specific HPTs to observe and or attack, normally in conjunction with a specific NAI or TAI. The striker team positions to observe the NAI or TAI and attack the specified HPTs. If the target is only designated for observation, the striker will report and track the target. Or, the striker may accept a target cross-cued by a sensor or other intelligence source. If the target is designated for attack, the striker will initiate target attack passing the mission to the BCT FSE over the digital fire support net. Upon completion of attack, the striker reports any required BDA.

The BCT commander and his staff determine the role of the striker platoon. The striker platoon is normally attached to or controlled by the BRT with the platoon leader acting as the BRT FSO. In any case, the BCT commander and his staff focus the striker platoon's efforts, clearly stating the platoon's task and purpose as early as possible. This allows the striker platoon to be incorporated into the RS&S plan during the decide phase of targeting. This further enables the platoon to deploy early, well in advance of the BCT's main body, and accomplish its designated detect, track and deliver and assess functions.